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Navajo Dunes

Sand dunes cover approximately one-third of the semi-arid 65,000 km^2 Navajo Nation on the southern Colorado Plateau. Given current severe drought conditions, climate variability based on known historic records (such as the drought during the early 20th century), the overall decrease in regional precipitation for this last century, the apparent drying trend on the Navajo Nation, and the possibility of climate change, the risk of sand dune mobilization within this region is high. Current work indicates that reactivation of stabilized sand is occurring in many areas of the Navajo Nation. Dune mobility is cause for concern, and is today inundating housing and causing transportation problems. It also may be contributing to a loss of rare and endangered native plants and grazing land, and lower air quality from periodic dust storms.

Mostly active dunes are typically vegetated with Russian Thistle (tumbleweeds), invasive annual plants that die and detach during dry, windy periods. Additional areas of old semi-indurated dune deposits with tumbleweed vegetation are showing significant dissection and deflation by wind. Areas adjacent to those with tumbleweeds, with similar rainfall and temperature, but with native vegetation, are stable. The relation of dune mobility to vegetation may differ when Russian Thistle is the dominant vegetation.

For more information, contact Margaret Hiza.

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U.S. Department of the Interior, *U.S. Geological Survey*
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